

CLAIMSWE CLAIM:

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1. A method of electronically identifying connections established through pairs of cross-connect circuits provided in a cross-connect system, comprising:

transmitting, from a first circuit of each pair of cross-connect circuits, a scanning signal over a scanning connection, the scanning connection being separate from a connection over which an information signal is communicated;

receiving the scanning signal from the scanning connection by a second circuit of each cross-connect circuit pair; and

deriving, from the scanning signal, connection information including information identifying the first circuit of each circuit pair respectively transmitting the scanning signal.

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2. The method of claim 1, wherein deriving the connection information further comprises deriving an identification of the first circuit of each circuit pair by reading identification information encoded in the scanning signal.

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3. The method of claim 1, wherein deriving the connection information further comprises:

reading a previously stored identification of the second circuit in response to receiving the scanning signal by the second circuit; and

6 deriving an identification of the first circuit
7 by reading identification information encoded in the
8 scanning signal.

1 4. The method of claim 3, further comprising storing
2 the identification of the first and second circuits of each
3 circuit pair in a database.

1 5. The method of claim 4, further comprising
2 accessing the database using a graphical user interface.

1 6. The method of claim 1, wherein transmitting the
2 scanning signal further comprises transmitting the scanning
3 signal over either a trace connection or a patch connection
4 of the scanning connection.

1 7. The method of claim 1, wherein transmitting the
2 scanning signal further comprises transmitting the scanning
3 signal over a shielding sleeve of a patch connection of the
4 scanning connection.

1 8. The method of claim 1, wherein transmitting the
2 scanning signal further comprises transmitting scanning
3 signals from respective first circuits in parallel.

1 9. The method of claim 1, wherein transmitting the
2 scanning signal further comprises sequentially transmitting
3 scanning signals from respective first circuits.

1 10. The method of claim 1, wherein:
2 the circuits are arranged in circuit groups and
3 the circuit groups are arranged in frames; and
4 deriving the connection information further
5 comprises deriving an identification of the circuit group
6 and an identification of the frame associated with the
7 first circuit of each of the circuit pairs.

1 11. The method of claim 1, further comprising
2 controlling an annunciator provided on each of the circuits
3 in response to monitoring the connection over which the
4 information signal is communicated.

1 12. The method of claim 1, further comprising
2 arbitrating a collision between scanning signals
3 communicated over the scanning connection.

1 13. The method of claim 1, wherein:
2 transmitting the scanning signal further
3 comprises transmitting scanning signals from respective
4 first circuits in parallel, each of the scanning signals
5 comprising a circuit identification bit string uniquely
6 identifying the first circuit of each circuit pair; and
7 deriving the connection information for all pairs
8 of cross-connect circuits provided in the cross-connect
9 system is accomplished substantially within a duration of
10 time required to transmit the circuit identification bit
11 string.

1 14. A cross-connect system, comprising:
2 a plurality of termination elements through which
3 cross-connections can be made;
4 a first communication medium communicatively
5 coupling cross-connected termination elements of the
6 plurality of termination elements, the first communication
7 medium communicating user information signals between
8 cross-connected termination elements of the plurality of
9 termination elements;
10 a second communication medium separate from the
11 first communication medium such that the user information
12 signals are communicated only over the first communication
13 medium, the second communication medium communicating
14 connection information signals; and
15 a processor coupled to the first and second
16 communication mediums, the processor coordinating the
17 communication of the connection information signals via the
18 second communication medium and acquisition of connection
19 information with regard to the cross-connected termination
20 elements.

1 15. The system of claim 14, wherein the first
2 communication medium comprises an optical communication
3 medium.

1 16. The system of claim 14, wherein the second
2 communication medium comprises an electrical communication
3 medium.

1 17. The system of claim 14, further comprising at
2 least one patch cord, the at least one patch cord
3 comprising a first communication pathway and a second
4 communication pathway, the first communication pathway

5 providing communication of user information signals between
6 a first termination element and a second termination
7 element, and the second communication pathway providing
8 communication of connection information signals to and from
9 the first and second termination elements.

1 18. The system of claim 17, wherein the first
2 communication pathway comprises an optical communication
3 pathway.

1 19. The system of claim 17, wherein the second
2 communication pathway comprises an electrical communication
3 pathway.

1 20. The system of claim 14, wherein the processor is
2 coupled to memory, the memory storing the connection
3 information.

1 21. The system of claim 14, wherein the processor is
2 coupled to memory and a user interface, the user interface
3 cooperating with one or both of the processor and memory to
4 display connection information.

1 22. The system of claim 14, wherein the processor is
2 coupled to memory and a user interface, the user interface
3 cooperating with one or both of the processor and memory to
4 control at least one annunciator of selected ones of the
5 plurality of termination elements.

1 23. The system of claim 14, wherein the processor is
2 communicatively coupled to a user interface, the user
3 interface situated geographically remote from the
4 processor.

1 24. The system of claim 14, wherein the processor is
2 communicatively coupled to a user interface, the user
3 interface situated geographically remote from the plurality
4 of termination elements.

1 25. The system of claim 14, wherein the processor is
2 communicatively coupled to a hand-held user interface.

1 26. The system of claim 14, wherein the processor is
2 coupled to memory, the connection information stored in the
3 memory as a database of connection information.

1 27. The system of claim 14, wherein the processor is
2 coupled to a user interface comprising a display, the user
3 interface cooperating with the processor to display a
4 graphical depiction of selected portions of the cross-
5 connect system.

1 28. The system of claim 14, wherein the processor is
2 coupled to a user interface comprising a display, the user
3 interface cooperating with the processor to display a
4 graphical depiction of selected ones of the plurality of
5 termination elements.

1 29. The system of claim 14, wherein the processor is
2 coupled to a user interface, the user interface cooperating
3 with the processor to control one or more annunciators of
4 selected ones of the plurality of termination elements.

1 30. The system of claim 14, wherein the processor is
2 coupled to a user interface and each of the termination
3 elements comprises one or more light emitting annunciators,
4 the user interface cooperating with the processor to

5 control the light emitting annunciators of selected ones of
6 the plurality of termination elements.

1 31. The system of claim 14, wherein the processor is
2 coupled to a user interface, the user interface cooperating
3 with the processor to control one or more annunciators of
4 selected ones of the plurality of termination elements for
5 guiding a technician when configuring the cross-connect
6 system.

1 32. The system of claim 14, wherein the processor is
2 coupled to a user interface, the user interface cooperating
3 with the processor to control one or more annunciators of
4 selected ones of the plurality of termination elements in
5 response to execution of a pre-programmed sequence of patch
6 operations to be performed by a technician.

1 33. A method of acquiring connection information for
2 termination elements of a cross-connect system, comprising:
3 communicating, via a first communication medium,
4 user information signals between cross-connected
5 termination elements of the cross-connect system;
6 communicating, via a second communication medium
7 separate from the first communication medium, connection
8 information signals, such that the user information signals
9 are communicated only over the first communication medium;
10 and
11 acquiring connection information with regard to
12 the cross-connected termination elements of the cross-
13 connect system using the connection information signals.

1 34. The method of claim 33, wherein communicating the
2 user information signals comprises optically communicating

3 the user information signals via the first communication
4 medium.

1 35. The method of claim 33, wherein communicating the
2 connection information signals comprises electrically
3 communicating the connection information signals via the
4 second communication medium.

1 36. The method of claim 33, further comprising
2 communicating user information signals between a first
3 termination element and a second termination element via a
4 first patch pathway, and communicating connection
5 information signals to the first and second termination
6 elements via a second patch pathway.

1 37. The method of claim 36, wherein communicating the
2 user information signals via the first patch pathway
3 comprises optically communicating the user information
4 signals via the first patch pathway.

1 38. The method of claim 36, wherein communicating the
2 connection information signals via the second patch pathway
3 comprises electrically communicating the connection
4 information signals via the second patch pathway.

1 39. The method of claim 33, further comprising
2 storing the connection information as a database of
3 connection information.

1 40. The method of claim 39, further comprising
2 remotely accessing the database of connection information.

1 41. The method of claim 33, further comprising
2 displaying connection information.

1 42. The method of claim 33, further comprising
2 graphically displaying connection information for a
3 selected portion of the cross-connect system.

1 43. The method of claim 33, further comprising
2 controlling at least one annunciator of selected ones of
3 the termination elements.

1 44. The method of claim 33, further comprising
2 controlling one or more light emitting annunciators of
3 selected ones of the termination elements for guiding a
4 technician when configuring the cross-connect system.

1 45. The method of claim 33, further comprising
2 controlling one or more annunciators of selected ones of
3 the termination elements in response to execution of a pre-
4 programmed sequence of patch operations to be performed by
5 a technician.